Seek

Volume 1
Issue 1 *Winter*

Article 7

May 2016

Manhattan, Kansas: Research Hub

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Proximity to research is one of the major reasons Manhattan, Kan., was selected as the new site for the National Bio and Agro-defense Facility.

That research is not limited to the university community, but also extends to federal facilities such as the Agricultural Research Service's Center for Grain and Animal Health Research. Scientists at this facility frequently collaborate on projects with faculty and staff from various Kansas State University departments.

Ron Trewyn, vice president for research at K-State, believes the center and the university have a great relationship. "We are trying to build a model for how the USDA and a university can work together," he said.

For more than 90 years the facility has been represented in the Manhattan community as part of the U.S. Department of Agriculture's Agricultural Research Service.

Today the facility includes five research units and a staff of about 100 employees and 30 to 40 scientists. Each of the scientists is working on a research project linked to federal or state scientists in other locations, according to Tom Shanower, agricultural administrator for the center. Additional projects are being conducted with K-State scientists. The varying research projects and partners show the multifaceted approach of the Center for Grain and Animal Health Research in action, an approach that is improving lives worldwide.

Arthropod-Borne Animal Disease Research Unit

The center's newest unit, relocated to Manhattan from Laramie, Wyo., in July 2010, works on diseases carried by insects, mostly biting midges and mosquitoes. These diseases are animal viruses. The viruses are grown in the unit's cell culture facility for examination and are kept in collections for later reference.

Engineering and Wind Erosion Research Unit

The most diverse unit at the center has two primary research projects: sorting technology and wind erosion.

Sorting technologies are of great value to plant breeders and industry, Shanower said. The equipment can sort based on a number of characteristics, including protein content, seed color and the presence or absence of something, such as a fungal disease in plants.

Wind erosion research has been ongoing since the Dust Bowl. The importance of this research has increased with recent discussions by the Environmental Protection Agency on regulating the dust from agricultural lands. The unit currently has a military grant from Fort Riley to study wind erosion at military lands and how dust can be reduced in adjacent communities.

Grain Quality and Structure Research Unit

This unit develops new products and examines the biochemical structure of grain, specifically wheat and sorghum and the products from both.

One development has been with sorghum as a wheat substitute. Because sorghum lacks the gluten that allows bread to rise, it was developed as a better wheat substitute for those with celiac disease.

Hard Winter Wheat Genetics Unit

A specific cooperative agreement facilitates collaboration in this unit with K-State. Based in Throckmorton Hall, the group identifies genes with resistance or tolerance to heat and biotic-like rust or Hessian fly. The genes are then made available to plant breeders.

"We provide the genes, and they incorporate them into varieties that have better agronomic traits," Shanower said.

Stored Product Insect Research Unit

Controlling the effects of insects on stored products is the focus of this unit. The Food and Drug Administration sets specific tolerances for the amount of insect fragments that can be found in bulk commodities or finished products. Integrated pest management approaches are developed along with specific control measures.

Recently, the group collaborated with researchers at the Baylor College of Medicine to sequence the genome of the red flour beetle. This sequencing provides opportunities to target specific genes in the beetle as control mechanisms.

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